#1246318263 ID: 88076303

SF
85.6
.E82
D46
1957

U. S. DEPARTMENT OF INTERIOR
BUREAU OF LAND MANAGEMENT

Range Studies-
Condition & Trend

TWO-PHASE RANGE CONDITION SURVEYS
SUPPLEMENTAL INSTRUCTIONS FOR FIELD USE

By MILO H. DEMING - REVISED MARCH 1957

The Two-Phase Method for making comprehensive range condition surveys is described fully in Volume IX Range, Part 10 Studies, Chapter 10.3 Condition Surveys of the Bureau of Land Management Manual, and amendments. These supplemental instructions are prepared for ready reference in the conduct of field work. They afford some additional hints and explanation of the local application and adaptation of general principles referred to in the accompanying Range Condition Criteria Index (Revised March 1957).

The essentials for Two-Phase Method Surveys are:

(1) A plant classification list--prepared locally in advance of field work.
(2) A Range Condition Criteria Index--4 pages, processed separately.
(3) A supply of forms No. BLM 2-407 or similar--for field observation write-ups.
(4) A map of the area to be surveyed--any convenient scale for field use.

****

This method gives equivalent but separate ratings to the two most significant phases of the range resource complex; i. e. the forage stand and site and soil mantle of the habitat. The ratings for these two phases are further considered in combination for comprehensive classification of range condition by relative terms commonly used by range managing agencies. The recording system used on field sheets and maps maintains separate ratings for each phase at each observation station so that arithmetic computation of changes in each can be made locality by locality at the time of subsequent resurveys.

Forage Stand Consideration--Phase I

This phase deals with plants on the basis of their relative contribution to the crop of forage being produced on any particular site for the animals expected to use the range at a specific season of the year. The four items of Quality, Quantity, Vigor, and Reproduction are rated with particular reference to how well the valuable and desirable plants are faring in competition with undesirable plants under current circumstances of growth and grazing use. With 100 points as a maximum possibility, the aggregate numerical rating derived for the four forage stand items represents how closely the conditions obtaining approach what is considered to be the full potential capacity of the particular site for forage production.

Site and Soil Mantle Consideration--Phase II

This phase deals with the physical features and environmental characteristics of the habitat which govern and limit the kind and abundance of native plants which can grow on any particular site. It considers all forms of vegetation and litter with reference to the protective cover it forms and the influence exerted on soil and water movement under prevailing climatic conditions. The four items of Protective Cover, Natural Vulnerability, Surface Runoff, and Soil Stability are rated independently. The aggregate numerical rating for these four items represents how near the situation as found approaches 100 points, or the ideal habitat conservation conditions for any particular site.

Some Basic Principles

(1) For range condition survey purposes the land areas to be surveyed are judged primarily from the viewpoint of usefulness for grazing purposes. Watershed, forest and other natural resource values present are not evaluated as such but are considered as environmental influences affecting the use and management of the area for range.

(2) Range condition is judged relatively with reference to resource conservation goals which can be attained by proper management under specified circumstances of grazing use rather than with reference to a possible ecological climax attainable under undisturbed natural competition.

(3) Where ranges are used jointly by livestock and big game animals the predominant use and the management objectives will govern which plant classification ratings are to be applied.

(4) Resurveys of range condition after intervals of several years will reveal the direction of trend and magnitude of the changes which have occurred by numerical comparisons of the respective survey ratings.

(5) The frequency of making field observation write-ups is governed by the necessity for sampling any significant changes in vegetational types, range sites, or use patterns. So long as these remain reasonably similar a single write-up will apply. Greater intensity of sampling makes the definition of condition class zone boundaries more exact.

Comparison Areas

Better understanding of the production potentials of various range sites may be had if ungrazed or lightly grazed areas are visited first and carefully rated. This helps to establish some definite criteria for making relative comparisons with findings on similar sites and in similar types. Local relict areas should be sought for observations on species composition, vigor and form of plants.

Site and Soil Habitat Consideration - Phase II

This phase deals with the physical features and environmental characteristics of the habitat which govern and limit the kind and abundance of native plants which can grow on any particular area. It considers all forms of vegetation and litter with reference to the protective cover it forms and the influence exerted on soil and water movement and/or preventing undesirable conditions. The four items of Protective Cover, Natural Vulnerability, Surface Tension, and Soil Stability are rated independently. The aggregate numerical rating for these four items represents how near the situation as found approaches 100 points, or the ideal habitat conservation conditions for any particular site.

Some Basic Principles

(1) For range condition survey purposes the land areas to be surveyed are judged primarily from the standpoint of usefulness for grazing purposes. Watershed, forest and other natural resource values present are not evaluated as such but are considered as environmental influences affecting the use and management of the area for range.

(2) Range condition is judged relatively with reference to resource conservation goals which can be attained by proper management under specified circumstances of grazing use rather than with reference to a possible ecological climax attainable under undisturbed natural conditions.

(3) Where ranges are used jointly by livestock and big game animals the predominant use and the management objectives will govern which plant classification ratings are to be applied.

(4) Resurveys of range condition after an interval of several years will reveal the direction of trend and magnitude of the changes which have occurred by numerical comparisons of the respective survey ratings.

(5) The frequency of making field observation writeups is governed by the necessity for analyzing any significant changes in vegetational types, range lines, or use patterns. So long as these remain reasonably similar a single write up will apply. Greater intensity of sampling makes the delineation of condition class zone boundaries more exact.

Comparison Areas

Better understanding of the production potentials of various range areas may be had if improved or lightly grazed areas are visited first and carefully rated. This helps to establish supplemental criteria for making relative comparisons with findings on similar sites and in similar types. Local relict areas should be sought for observations on species composition, vigor and form of plants.

Local Plant Classification Lists

Lists of all the important plant species found in the local native plant associations are prepared in advance of field work. These lists show a relative desirability classification (as high, medium, low, or worthless) for each species at each season of the year for each particular kind of grazing animal. These local plant lists become the foundation for judging the local relationships of desirable and undesirable plants as described for rating purposes in the Range Condition Index. The relative desirability classification for each plant is decided primarily on its forage value, but the placing may be discounted if the plant is objectionable for other reasons.

Combination Ratings and Map Color Legend

Two-Phase combination ratings are written thus: (60/80), the first figure always representing the aggregate forage stand index rating and the second figure always representing the aggregate Site-Soil Mantle Index Rating. Entry of this combination rating symbol on the field and record maps identifies the approximate location at which the corresponding field write-up was made.

The sum of the two figures which comprise the combination rating determines the appropriate range condition class according to where it falls within the following scale of numerical values for each condition class.

From	To	Range Condition Class	Map Zone Color
0	25	Waste-unusable	Red Hatchure
	*********	For Usable Range Only	*********
25	60	Bad	Red
60	95	Poor	Orange
95	130	Fair	Yellow
130	165	Good	Green
165	200	Excellent	Blue

Maps

Maps are an indispensable part of range condition survey records. Entry of the Two-Phase symbol on the map identifies the approximate location where the corresponding field write-up was made but the exact area of reference for each observation station is not bounded on the map. All observation stations for which the combination ratings fall within the numerical limits prescribed for each condition class are circumscribed by a zone boundary line. The zone or area occupied by each condition class is thus distinguished on the map for coloring and separate acreage computations.

Local Plant Classification Lists

Lists of all the important plant species found in the local native plant associations are prepared in advance of field work. These lists show a relative desirability classification (as high, medium, low, or worthless) for each species at each season of the year for each particular kind of grazing animal. These local plant lists become the foundation for judging the local relationships of desirable and undesirable plants as described for rating purposes in the Range Condition Index. The relative desirability classification for each plant is decided primarily on its forage value, but the placing may be determined if the plant is objectionable for other reasons.

Combination Ratings and Map Color Legend

Two-Phase combination ratings are written thus: (60\80), the first figure always representing the aggregate forage stand index rating and the second figure always representing the aggregate Site Soil Mantle index Rating. Entry of this combination rating symbol on the Field and record maps identifies the approximate location at which the corresponding field write-up was made.

The sum of the two figures which comprises the combination rating determines the appropriate range condition class according to where it falls within the following scale of numerical values for each condition class.

From	To	Range Condition Class	Map Zone Color
0	25	Waste-unusable	Red Hatchures
		For Usable Range Only	
25	60	Bad	Red
60	95	Poor	Orange
95	130	Fair	Yellow
130	165	Good	Green
165	200	Excellent	Blue

Maps

Maps are an indispensable part of range condition survey records. Entry of the Two-Phase symbol on the map identifies the approximate location where the corresponding field write-up was made but the exact area of reference for each observation station is not bounded on the map. All observation stations for which the combination ratings fall within the numerical limits prescribed for each condition class are circumscribed by a zone boundary line. The zone or area occupied by each condition class is thus distinguished on the map for coloring and separate acreage computations.

Field maps may be of any convenient scale available. Large scale maps often contain topographic detail or vegetation type lines which facilitate the location of condition class boundaries. For permanent district record purposes the field information obtained should be transferred to district maps no larger in scale than 1/4 or 1/2 inches per mile. The area covered by surveys each year should be identified by dating with the year of survey in order to plan the cycle for periodic resurveys of particular units.

Trend and Trend Symbols

Trends describe the progressive pattern of changes in range condition which develop over a period of at least several years time. These should be distinguished from the short term fluctuations which occur from year to year with more or less erratic patterns usually associated with climatic variation.

When former acquaintance of the examiner with any range area or when periodic resurveys permit a reliable observation of trend, the following symbols will be used to indicate trends appropriately on the field write-up form, No. II-407, and on maps prepared to show trends.

Symbol	Name	Interpretation
++	Double plus	Very marked upward trend, and/or great increase.
+	Single plus	Definite and significant upward trend, and/or small increase.
Φ	Balance	Stable or indefinite position. Change is too small for positive determination of trend in either direction.
—	Single minus	Definite and significant downward trend, and/or small decrease.
=	Double minus	Very marked downward trend, and/or great decrease.

Correlation with Other Records

Range Condition surveys picture cumulative results but do not disclose definite reasons for the prevailing conditions. The reasons must be developed through correlated analysis of other historical and contemporary records which afford local details about the circumstances of forage production and its use. The cumulative influences most responsible for range condition and trends are seasonal and yearly variation in grazing pressure and weather. Consequently, timely records of actual stocking, utilization results, improvement installations, forage production circumstances, and weather influence must be kept or consulted to assign valid reasons for the existing situation. Correlation of such records with survey findings will indicate the nature and some measure of adjustments required to correct unsatisfactory or maintain satisfactory conditions.

BLM Library
Denver Federal Center
Bldg. 50, OC-521
P.O. Box 25047
Denver, CO 80225